Missouri Assessment Program
Spring 2003

Mathematics

Released Items

Grade 8

5 Sara is playing a number game using the card shown below. The object of the game is to get five numbers in a row, arranged either horizontally, vertically, or diagonally.

2	16	18	27	13
8	44	7	33	45
54	3	5	49	55
22	24	81	19	4
35	29	11	32	28

During the game, the following five different numbers are called out:

- a prime number
- a perfect square
- a power of 2
- a multiple of 3
- a multiple of 9 that is not a multiple of 6

Could Sara have five numbers in a row, arranged either horizontally, vertically, or diagonally? Circle the correct numbers on the card. In the box below, use mathematics to explain how you know which numbers to circle.

**6** A recent sampling of movie ticket prices from various cities around the world was compiled into the table below.

MOVIE TICKET PRICES AROUND THE WORLD

City	Ticket Price (in U.S. dollars)
Tokyo, Japan	17.58
Munich, Germany	10.73
Sydney, Australia	9.53
Paris, France	9.25
London, England	9.21
Hong Kong	7.60
Madrid, Spain	5.66
Toronto, Canada	5.11
Mexico City, Mexico	2.52

On the grid below, construct a bar graph from the data in the table to show the prices of movie tickets in various cities around the world.

Be sure to:

- provide a title
- label the axes
- use an appropriate and consistent scale
- accurately graph the data
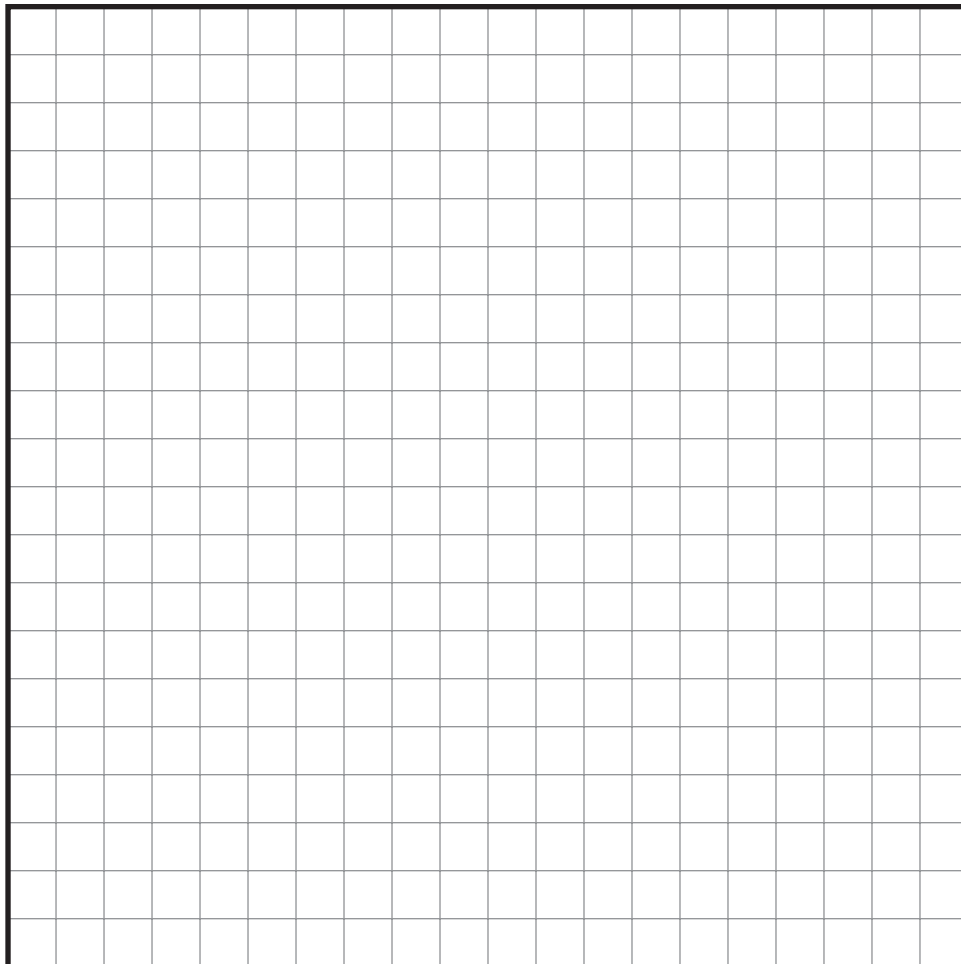
Session 1 | Page 9

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Released Items Scoring Guide

Grade 8

Session: 1
Item No.:   5
Page No.:   7
Content Standard(s): 5 Mathematical Systems and Number Theory
Process Standard(s): 3.5

Exemplary Response:

-                OR

2	16	18	(27)	13
8	44	7	(33)	45
54	3	5	(49)	55
22	24	81	(19)	4
35	29	11	(32)	28

(2)	(16)	(18)	(27)	(13)
8	44	7	33	45
54	3	5	49	55
22	24	81	19	4
35	29	11	32	28

AND

- 27 $3 \times 9 = 27$, divisible by 9 but not by 6
  33    $3 \times 11 = 33$, multiple of 3
  49    $7 \times 7 = 49$, a perfect square
  19   a prime number, only divisible by 1 and 19
  32    $2^5 = 32$, a power of 2

  OR

- 2 $2^1 = 2$, a power of 2
  16    $4 \times 4 = 16$, a perfect square
  18    $3 \times 6 = 18$, multiple of 3
  27    $3 \times 9 = 27$, divisible by 9 but not by 6
  13   a prime number, only divisible by 1 and 13

Score Points:

2 points   Exemplary response

1 point   Correct numbers circled only

                  OR

                  Correct explanations only

0 points   Other

Session: 1
Item No.:   6
Page No.:   8–9
Content Standard(s):   3 Data Analysis, Probability, and Statistics
Process Standard(s):   1.8

Exemplary Response:

- Correctly graphed data as shown:
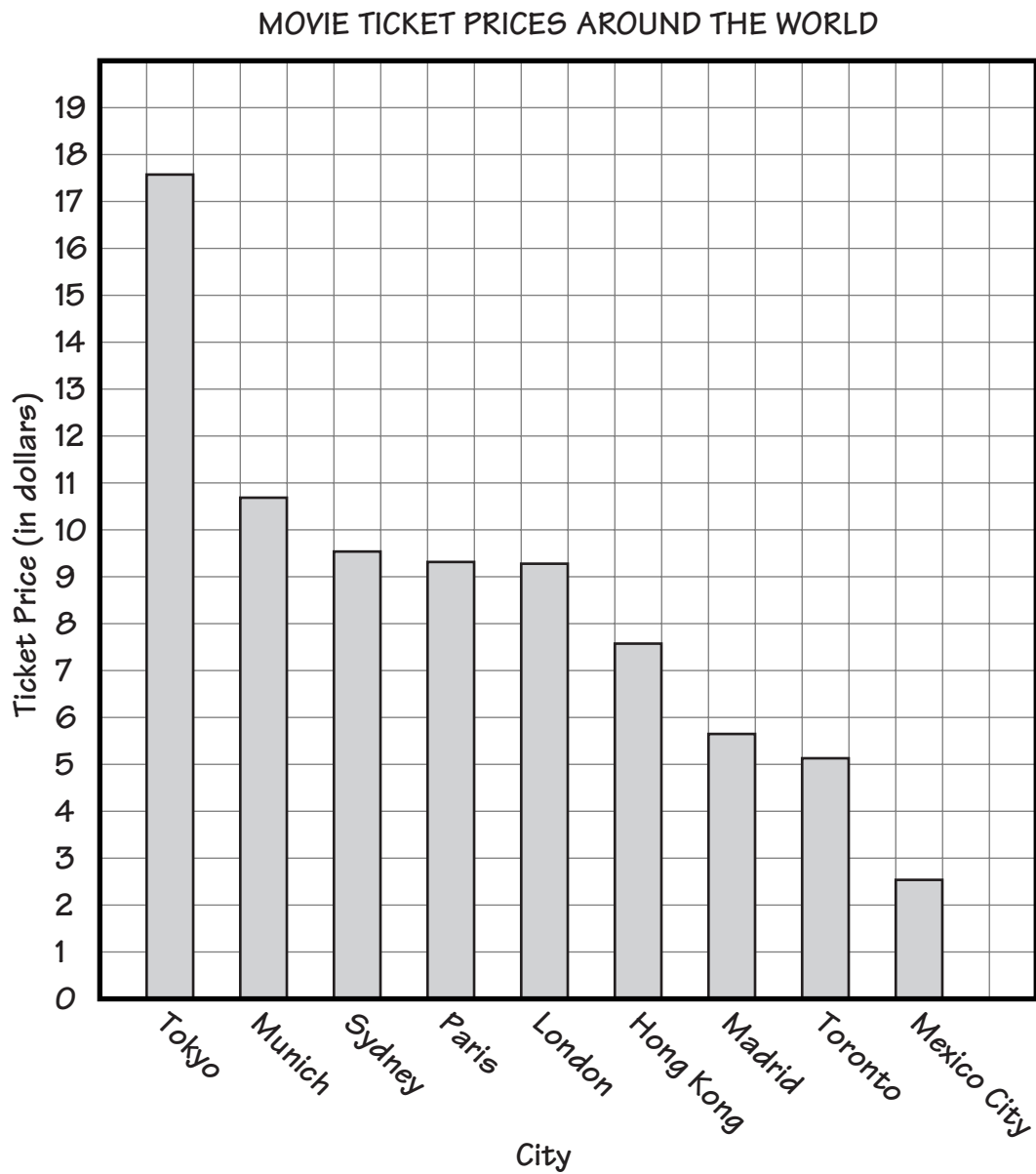
MOVIE TICKET PRICES AROUND THE WORLD

Session: 1
Item No.: 6
Page No.: 8–9
Content Standard(s): 3 Data Analysis, Probability, and Statistics
Process Standard(s): 1.8

Score Points:

2 points   Exemplary response

1 point   1–2 errors in the title, labels, scale, and/or graphing

0 points   3 or more errors